

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* GENNARO A. CUOMO, MICHAEL L. FRAENKEL,  
and BRIAN K. MARTIN

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Appeal 2006-3394  
Application 09/627,518<sup>1</sup>  
Technology Center 2100

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Decided: March 30, 2007

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*Before* KENNETH W. HAIRSTON, ALLEN R. MACDONALD, and JAY  
P. LUCAS *Administrative Patent Judges*.

LUCAS, *Administrative Patent Judge*.

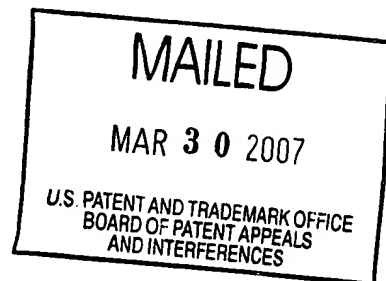
DECISION ON APPEAL

STATEMENT OF CASE

Appellants appeal from the Examiner's final rejection of claims 1-5, 7-15, 17-20, 25, and 26 under authority of 35 U.S.C. § 134 (2002). The Board of Patent Appeals and Interferences (BPAI) has jurisdiction under 35 U.S.C. § 6(b) (2002).

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<sup>1</sup> Application filed July 28, 2000. The real party in interest is International Business Machines Corporation.



Appellants' invention relates to a method, apparatus and computer program for connecting a plurality of application servers to service requests for information from clients across the Internet. More particularly, the present invention provides a method and apparatus for routing requests to application servers based on performing a hash function of the session identification number to indicate which server should service the request.

Claim 1 and Claim 8 are exemplary:

1. A method in a data processing system for managing a request including a session identification, comprising:

calculating a first value based on the session identification;

routing the request for a first server based on the first value;

determining whether the first server is functional;

calculating a second value based on the first value in response to the first server being non-functional; and

routing the request to a second server based on the second value.

8. A method in a data processing system for routing a request to one of a number of servers, comprising:

receiving a request including a session identification;

performing a hash function on the session identification to form a first hash value;

performing a modulus function on the first hash value to form a first integer;

routing the request to a first server based on the first integer in response to the first server being functional;

performing a hash function on the first hash value to form a second hash value in response to the first server being non-functional;

performing a modulus function on the second hash value to form a second integer; and

routing the request to a second server based on the second integer.

Group I: The Examiner rejected claims 1, 2, 5, 7, 11, 12, 15, 17, and 25 under 35 U.S.C. § 103 (a) for being obvious over Chung in view of Khuc, and Johnson.

Group II: The Examiner rejected claims 3, 4, 13, and 14 under 35 U.S.C. 103(a) for being obvious over Chung, Khuc, and Johnson in view of Muller.

Group III: The Examiner rejected claims 8-10, 18-20, and 26 under 35 U.S.C. 103(a) for being obvious over Chung in view of Khuc, Johnson, and Muller.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Chung	US 6,470,389 B1	Oct. 22, 2002 (filed Mar. 14, 1997)
Khuc	US 6,470,008 B1	Oct. 22, 2002 (filed Jul. 9, 1998)
Johnson	US 6,591,250 B1	Jul. 8, 2003 (filed Feb. 15, 1999)
Muller	US 6,606,301 B1	Aug. 12, 2003 (filed Mar. 1, 1999)

Appellants contend that the claimed subject matter is not rendered obvious by Chung alone, or in combination with Khuc and Johnson or Muller, for reasons to be discussed more fully below. The Examiner contends that each of the three groups of claims is properly rejected.

Rather than repeat the arguments of Appellants or the Examiner, we make reference to the Briefs and the Answer for their respective details. Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants could have made but chose not to make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2004).<sup>2</sup>

We affirm the rejections of claims in Groups I and II, and reverse the rejection of the claims in Group III.

#### ISSUE

The rejections, and indeed the arguments of counsel and of the Examiner, revolve around a single issue, namely whether the Examiner erred in rejecting the claims over Chung in view of Khuc, Johnson, and Muller, as specified above. More specifically, the issue is whether the references, individually or collectively teach “calculating a second value based on the first value in response to the first server being non-functional” or

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<sup>2</sup> Appellants have not presented any substantive arguments directed separately to the patentability of the dependent claims or related claims in each group, except as will be noted in this opinion. In the absence of a separate argument with respect to those claims, they stand or fall with the representative independent claim. *See In re Young*, 927 F.2d 588, 590, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991). *See also* 37 C.F.R. § 41.37(c)(1)(vii).

“performing a hash function on the first hash value to form a second hash value in response to the first server being non-functional.”

### FINDINGS OF FACT

The following findings are applicable to resolving the stated issue for Groups I, II, and III:

1. Appellant invented a method, apparatus and computer program to connect an incoming request from a client computer across the Internet to one of a bank of application servers, the choice of the specific server being based on performing a mathematical hash function on the session identification number and yielding a first hash value. That hash value corresponds to one of the servers in the bank of application servers. If the selected server is not operational, then the hash function is applied to the first hash value to yield a second hash value, which is related to another one of the application servers.  
(Br. 3)

2. Chung, in the words of the Examiner, “teaches the invention substantially as claimed, a method in a data processing system for managing a request including a session identification,...” (Answer 3).

In column 4, l. 35 ff, Chung indicates:

The client requests are dispatched such that each of the requests is processed by only one of the servers in the cluster. The dispatching function may be based on the result of applying a hash function to an IP address of the given client. A suitable hash function may be determined using an analysis of a distribution of client IP addresses in an access log associated

with one or more of the servers. In the event that a server has failed, the hash function may be reapplied to the client IP address to identify another server.

3. Examiner has stated that the client IP address acts as the session identifier, which has not been argued by Appellants. (Final Rejection 4).
4. Chung clearly expresses that the IP address “is rehashed to map to a non-failed server” when “the hash value of a given client IP address maps to the failed server.” (Col. 7, l. 9 ff). The Examiner recognized that the Chung reference does not teach performing a hash function on the original hash value. (Answer 4). He indicates that the reference Johnson, a patent addressed to managing virtual property on data stores, teaches “calculating a second value based upon a first value which entails performing a hash function on a first value already calculated from a first hash, i.e.  $H(K, H(K, M))$  [Johnson-- Col. 13 lines 30-32].” Johnson, however, performs this second hash to further provide security. To quote Johnson:

There are certain types of cryptographic attacks that can theoretically compromise this type of authentication code, so an improved MAC [message authentication code] may be used. For example, the following MAC construction that performs a hash function twice is more secure than a single hash function such as the function  $H(K, H(K, M))$ .

- (Col. 13, ll. 27-32). We find, thus, that Johnson is not performing this hash of the first hash code in response to a failed server, but to improve security in general. The limitation in claims 8, 18, and 26 to that effect is not taught in the cited prior art, and we find that the bases for the

rejections under 35 U.S.C. § 103 of claims 8, 18 and 26 are not well founded.

5. The claimed method of claim 1 requires that when the indicated server is non-functional, “calculating a second value based on the first value in response to the first server being non-functional.” Claim 1, and the claims dependent on it, do not require that the second value be performed by a hash function. In Chung, the second value is specifically calculated to be different from the first value. At column 7, line 9 ff, Chung states, “[i]f the hash value of a given client IP address maps to the failed server, the client IP address is rehashed to map to a non-failed server...” Thus, the calculation of the second value in Chung can be called “based on the first value,” which it specifically avoids. We find that based on this permissibly broad reading of Chung, the Examiner’s rejections of claims 1, 11 and 25 and those dependent thereon are founded on a proper teaching from Chung, alone or in combination with Khuc, Johnson and Muller. Note that Claim 2 only requires that the first value comprises performing a hash function of the session identification, which is shown in Chung.

#### PRINCIPLES OF LAW

On appeal, Appellants bear the burden of showing that the Examiner has not established a legally sufficient basis for the rejection of the claims.

“In reviewing the [E]xaminer’s decision on appeal, the Board must necessarily weigh all of the evidence and argument.” *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

In sustaining a multiple reference rejection under 35 U.S.C. § 103(a), the Board may rely on one reference alone without designating it as a new ground of rejection. *In re Bush*, 296 F.2d 491, 496, 131 USPQ 263, 266-67 (CCPA 1961); *In re Boyer*, 363 F.2d 455, 458 n.2, 150 USPQ 441, 444 n.2 (CCPA 1966).

Our reviewing court states in *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) that “claims must be interpreted as broadly as their terms reasonably allow.” Our reviewing court further states, “[t]he terms used in the claims bear a ‘heavy presumption’ that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art.” *Texas Digital Sys., Inc v. Telegenix, Inc.*, 308 F.3d 1193, 1202, 64 USPQ2d 1812, 1817 (Fed. Cir. 2002).

## ANALYSIS

Appellants have contended that the Examiner erred in rejecting claims 1-5, 7-15, 17-20, 25, and 26 under 35 U.S.C. § 103(a). Reviewing the findings of facts cited above, we conclude that the Examiner did not err in rejecting claims 1-5, 7, 11-15, 17 and 25, as the elements of the claimed subject matter are found in, or obvious over, the cited prior art, when taken as a whole.

However, in view of the discovered prior art lacking a teaching of “performing a hash function on the first hash value to form a second hash value in response to the first server being non-functional” the rejection of the claims of Group III (claims 8-10, 18-20, and 26) was in error, and is reversed.



### CONCLUSION OF LAW

Based on the findings of facts and analysis above, we conclude that the Examiner erred in rejecting claims 8-10, 18-20, and 26. The rejection of those claims is reversed. The rejection of the other claims, 1-5, 7, 11-15, 17, and 25 is affirmed.

### DECISION

The Examiner's rejection of claims 1-5, 7-15, 17-20, 25, and 26 is affirmed.

The Examiner's rejection of claims 8-10, 18-20, and 26 is reversed.

Appeal 2006-3394  
Application 09/627,518

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART

tdl/GW

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